

Claims

1. A process for making eye glasses where at least one portion (16, 116, 117, 199) of the eye glass mounting frame is made from a suitable material, especially plastic, and preferably rigid or semi-rigid plastic; the process being characterised in that it involves making at least one internal cavity (20, 120, 141, 143) in said portion (16, 116, 117, 199) of the eye glasses.
2. The process according to claim 1, characterised in that the internal cavity (20, 120, 141, 143) is made in the eye glass portion (16, 116, 117, 119) by injecting a filler gas into the eye glass portion (16, 116, 117, 119).
3. The process according to claim 2, characterised in that the gas comprises nitrogen.
4. The process according to claim 2 or 3, characterised in that the gas is injected into the eye glass portion (16, 116, 117, 119) at a predetermined pressure.
5. The process according to any of the foregoing claims from 2 to 4, characterised in that the filler gas is injected into the eye glass portion (16, 116, 117, 119) during the hot moulding of the eye glass portion (16, 116, 117, 119) itself.
6. The process according to any of the foregoing claims from 2 to 5, characterised in that once the internal cavity has been made in the eye glass portion (16, 116, 117, 119), the gas is allowed to escape from the portion (16, 116, 117, 119).
7. The process according to any of the foregoing claims from 2 to 6, characterised in that the opening (24, 124, 144) through which the filler gas is injected into the eye glass portion (16, 116, 117, 119) is sealed.

8. The process according to claim 7, characterised in that the opening (24, 124, 144) through which the filler gas is injected into the eye glass portion (16, 116, 117, 119) is sealed by heating the material of which the portion (16, 116, 117, 119) is made.

9. The process according to any of the foregoing claims, characterised in that the internal cavity (20, 120, 141, 143) is made in a portion (16, 116, 117, 119) of the eye glass frame with a predetermined minimum cross section size.

10. The process according to any of the foregoing claims, characterised in that the internal cavity (20) has a variable cross section size.

11. The process according to claim 10, characterised in that the internal cavity (20, 22d) at any one point has a cross section size that depends on the cross section size of the eye glass frame at that point.

12. The process according to any of the foregoing claims, characterised in that the eye glass portion (16, 116, 117, 119) is constituted by the front of the frame which mounts a first and a second lens (12, 14, 112, 114).

13. The process according to any of the foregoing claims, characterised in that the internal cavity is made in the form of a lengthwise duct (20, 120, 141, 143).

14. The process according to any of the foregoing claims, characterised in that the internal cavity (20, 120) has at least a first and a second branch channel (20a, 20b, 120a, 120b) extending in substantially opposite directions.

15. The process according to any of the foregoing claims, characterised in that the internal cavity (20, 120) is made in the top section of the eye glass frame front (16, 116).

16. The process according to any of the foregoing claims, characterised in that the internal cavity is made in the lower section of the frame front.

5 17. The process according to any of the foregoing claims, characterised in that the internal cavity is made to extend right around each respective eyepiece of the front of the frame.

10 18. The process according to any of the foregoing claims, characterised in that the internal cavity (22b, 122b) is made in the part of the eye glass frame front (16, 116) where the nose pads (21, 23, 121, 123) are located.

15 19. The process according to any of the foregoing claims, characterised in that the internal cavity (20, 120) is made to extend from an intermediate point of the respective eye glass portion (16, 116, 117, 119).

20 20. The process according to any of the foregoing claims, characterised in that the internal cavity (20, 120) is made to extend from a midpoint of the respective eye glass portion (16, 116, 117, 119).

25 21. The process according to any of the foregoing claims, characterised in that the internal cavity (20, 120) is made to extend from the bridge (15, 115) of the front portion (16, 116) of the eye glasses.

30 22. The process according to any of the foregoing claims, characterised in that the internal cavity (20, 120) is made to extend from the lower surface of the bridge (15, 115) of the front portion (16, 116) of the eye glasses.

35 23. The process according to any of the foregoing claims, characterised in that the internal cavity (20, 120) is made to extend in at least two substantially opposite directions (20a, 20b, 120a, 120b).

24. The process according to any of the foregoing claims, characterised in that the internal cavity (20, 120) is made to extend substantially along the full width of the connecting bridge (15, 115).

5

25. The process according to any of the foregoing claims, characterised in that the internal cavity (20, 120) is made to extend substantially along the full height of the connecting bridge (15, 115).

10

26. The process according to any of the foregoing claims, characterised in that the internal cavity (20, 120) is substantially the same size as the connecting bridge (15, 115).

15

27. The process according to any of the foregoing claims, characterised in that the internal cavity (120) comprises a wide chamber (120') situated just downstream of the injection point opening (124).

20

28. The process according to any of the foregoing claims, characterised in that the internal cavity (120) comprises a large chamber (120').

25

29. The process according to any of the foregoing claims, characterised in that the internal cavity (120) comprises a central chamber (120') from which there extend a plurality of channels (120a, 120b, 122a, 122b) in the directions of respective branches (116a, 116b, 115a, 115b) of the eye glass portion (116).

30

30. The process according to any of the foregoing claims, characterised in that the internal cavity (120) comprises a central chamber (120') from which there extend a plurality of channels (120a, 120b, 122a, 122b), the channels (120a, 120b) in a direction transversal to, and the channels (122a, 122b) in a direction perpendicular to, the front eye glass portion.

35

31. The process according to any of the foregoing claims, characterised in that the internal cavity has at least one branch channel (122a, 122b) extending in a direction substantially opposite the direction in which the gas is injected into the eye glass portion.

32. The process according to any of the foregoing claims, characterised in that the eye glass portion comprises a sidepiece (117, 119) of the eye glass frame.

33. The process according to any of the foregoing claims, characterised in that the internal cavity (141, 143) is made to extend from an intermediate point of the sidepiece (117, 119).

34. The process according to any of the foregoing claims, characterised in that the internal cavity (141, 143) is made to extend from a point (145, 147) located in an end area (119a) to be coated with suitable material (150, 152) towards the area of connection to the front portion of the eye glass frame.

35. The process according to any of the foregoing claims, characterised in that the injection point (145, 147), which is situated in an end area (119b) to be coated, is separated from the end of the area to be coated by a gap (d) such that the channel can extend in a direction that is substantially parallel to the direction in which the corresponding portion (117a, 119a) extends.

36. The process according to any of the foregoing claims, characterised in that the internal cavity (143) is made to extend from a point in an area (119b) with a reduced or narrow cross section.

37. Eye glasses comprising a mounting frame that has at least one portion (16, 116, 117, 119) made of a suitable material, especially plastic, and preferably rigid or semi-rigid plastic; the eye glasses being characterised in that said portion (16, 116,

117, 119) of the eye glasses presents at least one internal cavity (20, 120, 141, 143).

5 38. The eye glasses according to claim 37, characterised in that the internal cavity (20, 120, 141, 143) is made in the eye glass portion (16, 116, 117, 119) by injecting a filler gas into the eye glass portion (16, 116, 117, 119).

10 39. The eye glasses according to claim 38, characterised in that the gas comprises nitrogen.

15 40. The eye glasses according to claim 38 or 39, characterised in that the gas is injected into the eye glass portion (16, 116, 117, 119) at a predetermined pressure.

20 41. The eye glasses according to any of the foregoing claims from 38 to 40, characterised in that the filler gas is injected into the eye glass portion (16, 116, 117, 119) during the hot moulding of the eye glass portion (16, 116, 117, 119) itself.

25 42. The eye glasses according to any of the foregoing claims from 38 to 41, characterised in that once the hollow area has been made in the eye glass portion (16, 116, 117, 119), the filler gas is allowed to escape from the portion (16, 116, 117, 119).

30 43. The eye glasses according to any of the foregoing claims from 38 to 42, characterised in that the opening (24, 124, 144) through which the filler gas is injected into the portion (16, 116, 117, 119) is sealed.

35 44. The eye glasses according to claim 43, characterised in that the opening (24, 124, 144) through which the filler gas is injected into the eye glass portion (16, 116, 117, 119) is sealed by heating the material of which the portion (16, 116, 117, 119) is made.

45. The eye glasses according to any of the foregoing claims from 37 to 44, characterised in that the internal cavity (20, 120, 141, 143) is made in a portion (16, 116, 117, 119) of the eye glass frame with a predetermined minimum cross section size.

5

46. The eye glasses according to any of the foregoing claims from 37 to 45, characterised in that the internal cavity (20, 120, 141, 143) has a variable cross section size.

10

47. The eye glasses according to claim 46, characterised in that the internal cavity at any one point has a cross section size that depends on the cross section size of the eye glass frame at that point.

15

48. The eye glasses according to any of the foregoing claims from 37 to 47, characterised in that the eye glass portion (16, 116, 117, 119) is constituted by the front of the frame which mounts a first and a second lens (12, 14, 112, 114).

20

49. The eye glasses according to any of the foregoing claims from 37 to 48, characterised in that the internal cavity (20, 120, 141, 143) consists of a lengthwise duct.

25

50. The eye glasses according to any of the foregoing claims from 37 to 49, characterised in that the internal cavity (20, 120) has at least a first and a second branch channel (20a, 20b, 120a, 120b) extending in substantially opposite directions.

30

51. The eye glasses according to any of the foregoing claims from 37 to 50, characterised in that the internal cavity (20, 120) is made in the top section of the eye glass frame front (16, 116).

35

52. The eye glasses according to any of the foregoing claims from 37 to 51, characterised in that the internal cavity is made in the lower section of the eye glass frame front.

53. The eye glasses according to any of the foregoing claims from 37 to 52, characterised in that the internal cavity extends right around the respective eyepiece portion of the frame.
- 5 54. The eye glasses according to any of the foregoing claims from 37 to 53, characterised in that the internal cavity (22b, 122a, 122b) extends in the part of the front (16, 116) of the frame (115a, 115b) where the nose pads (21, 23, 121, 123) are located.
- 10 55. The eye glasses according to any of the foregoing claims from 37 to 54, characterised in that the internal cavity (20, 120) extends from an intermediate point of the respective eye glass portion (16, 116, 117, 119).
- 15 56. The eye glasses according to any of the foregoing claims from 37 to 55, characterised in that the internal cavity (20, 120) extends from a central or middle point of the respective eye glass portion (16, 116, 117, 119).
- 20 57. The eye glasses according to any of the foregoing claims from 37 to 56, characterised in that the internal cavity (20, 120) extends from the bridge (15, 115) of the front portion (16, 116, 117, 119) of the eye glasses.
- 25 58. The eye glasses according to any of the foregoing claims from 37 to 57, characterised in that the internal cavity (20, 120) extends from the lower surface of the bridge (15, 115) of the front portion (16, 116, 117, 119) of the eye glasses.
- 30 59. The eye glasses according to any of the foregoing claims from 37 to 58, characterised in that the internal cavity (20, 120) extends in at least two substantially opposite directions (20, 20b, 120a, 120b).
- 35 60. The eye glasses according to any of the foregoing claims from 37 to 59, characterised in that the internal cavity (20, 120)

extends substantially along the full width of the connecting bridge (15, 115).

5 61. The eye glasses according to any of the foregoing claims from 37 to 60, characterised in that the internal cavity (20, 120) extends substantially along the full height of the connecting bridge (15, 115).

10 62. The eye glasses according to any of the foregoing claims from 37 to 61, characterised in that the internal cavity (20, 120) is substantially the same size as the connecting bridge (15, 115).

15 63. The eye glasses according to any of the foregoing claims from 37 to 62, characterised in that the internal cavity (120) comprises a wide chamber (120') situated just downstream of the injection point opening (124).

20 64. The eye glasses according to any of the foregoing claims from 37 to 63, characterised in that the internal cavity (120) comprises a large chamber (120').

25 65. The eye glasses according to any of the foregoing claims from 37 to 64, characterised in that the internal cavity (120) comprises a central chamber (120') from which there extend a plurality of channels (120a, 120b, 122a, 122b) in the directions of respective branches (116a, 116b, 115a, 115b) of the eye glass portion (116).

30 66. The eye glasses according to any of the foregoing claims from 37 to 65, characterised in that the hollow area comprises a central chamber (120') from which there extend a plurality of channels (120a, 120b, 122a, 122b), the channels (120a, 120b) in a direction transversal to, and the channels (122a, 122b) in a direction perpendicular to, the front eye glass portion.

35 67. The eye glasses according to any of the foregoing claims from 37 to 66, characterised in that the internal cavity comprises at

least one branch channel (122a, 122b) extending in a direction substantially opposite the direction in which the gas is injected into the eye glass portion.

5 68. The eye glasses according to any of the foregoing claims from 37 to 67, characterised in that the eye glass portion comprises a sidepiece (117, 119) of the eye glass frame.

10 69. The eye glasses according to any of the foregoing claims from 37 to 68, characterised in that the internal cavity (141, 143) extends from a point (145, 147) of the respective sidepiece located in an end area (119a) to be coated with suitable material (150, 152) towards the area of connection to the front portion of the eye glass frame.

15 70. The eye glasses according to any of the foregoing claims from 37 to 69, characterised in that the injection point (145, 147), which is situated in an end area (119a) to be coated, is separated from the end of the area to be coated by a gap (d) such that the
20 channel can extend in a direction that is substantially parallel to the direction in which the corresponding portion (117a, 119a) extends.

25 71. The eye glasses according to any of the foregoing claims from 37 to 70, characterised in that the internal cavity (143) extends from a point in an area (199b) with a reduced or narrow cross section.

30 72. The eye glasses according to any of the foregoing claims from 37 to 71, characterised in that the material of which the eye glass frame is made is transparent.

35 73. The eye glasses according to any of the foregoing claims from 37 to 72, characterised in that the inside surface defining the internal cavity is coloured.